PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Akinori SHIBUYA

Docket No: Q80850

Appln. No.: 10/813,136

Group Art Unit: 1752

Confirmation No.: 3725

Examiner: Barbara Lee Gilliam

Filed: March 31, 2004

For: PHOTOSENSITIVE COMPOSITION AND NOVEL COMPOUND USED THEREFOR

**DECLARATION UNDER 37 C.F.R. § 1.132**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Akinori Shibuya, hereby declare and state as follows:

I am a citizen of Japan.

I am employed by Fuji Photo Film Co., Ltd.

I am the sole inventor of the present invention.

I am familiar with the Office Action of January 20, 2006, in the above-identified application. I have reviewed the rejections under 35 U.S.C. § 103(a) and the cited references, Murota et al (EP 1048982 A1 and U.S. Patent 6,335,144). In order to demonstrate the patentability of the present invention over the cited references, the following experiments were conducted by me or under my direct supervision.

## EXPERIMENT

The following experiments were carried out to demonstrate the different effects of a titanocene initiator and a hexaaryl biimidazole initiator (HABI) on the performance of a photosensitive composition containing the same.

Specifically, two photosensitive materials were prepared, one being a Comparative Example and the other being in accordance with Example 5 as described in the present application.. The Comparative Example is the same as Example 5, except that compound A-10 was used as the initiator instead of compound A-5. The photosensitive materials of Example 5 and the Comparative Example were evaluated in the same manner as described in the present application with respect to sensitivity. Further, Example 5 and Comparative Example were evaluated in terms of safelight stability as follows.

The photosensitive materials of Example 5 and the Comparative Example were first exposed for one hour to a yellow light safelight (a product of Osram GmbH) where the emission having a wavelength shorter than 520 nm had been cut out prior to exposure. Then, the photosensitive materials of Example 5 and the Comparative Example were exposed and developed in the same manner as described in the Examples of the present application. A material that did not give rise to fog was evaluated as "good", and a material that gave rise to fog was evaluated as "poor". The compositions of Example 5 and the Comparative Example and the results obtained therefrom are summarized in following Table 1.

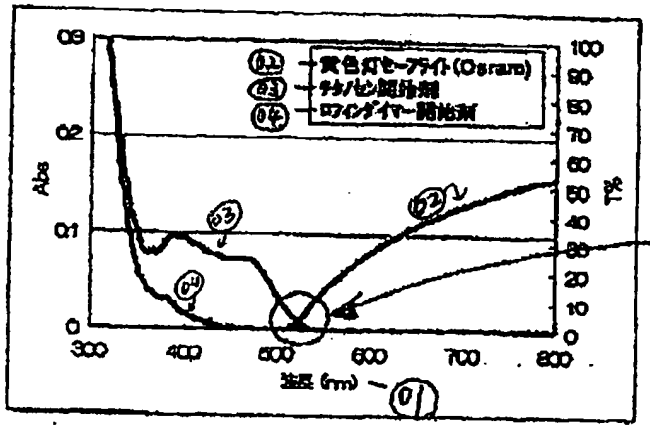
Table 1. Results of Performance Evaluation

| | Initiator System | | | Coating Amount ($mg/cm^2$) | Clearing Sensitivity ($mJ/cm^2$) | Safelight Stability |
|---|---|---|---|---|---|---|
| | Sensitizing dye (Xg) | Initiator (Yg) | Co-sensitizer (Zg) | | | |
| Example 5 | D1 (0.07) | A-5 (0.10) | C-1 (0.5) | 1.2 | 0.25 | Good |
| Comparative Example | D1 (0.07) | A-10 (0.10) | C-1 (0.5) | 1.2 | 0.30 | Poor |

All the symbols in Table 1 have the same meanings as described in the present application.

As the results in Table 1 show, the photosensitive material of the Comparative Example, which contained a titanocene initiator, gave rise to fog under a yellow light safelight. In contrast, the photosensitive material of Example 5, which contained a hexaaryl biimidazole initiator, did not give rise to fog under a yellow light safelight.

The following graph shows the absorption spectra of both the titanocene initiator and the lophine dimer initiator, and the transmission spectrum of the safelight (a yellow light).




01: Wavelength (nm)

02: Yellow light safelight (Osram GmbH)

03: Titanocene initiator

04: Lophine dimer initiator

05: Since these two curves overlap here, fog necessarily generates whenever a titanocene is contained.

Method of spectrum measurement

The absorption spectrum of the initiator compound was obtained by preparing a polymer matrix containing the initiator compound, and measuring the reflection spectrum of the matrix with use of a UV-Vis-NIR Spectrophotometer Cary 5G produced by Varian Inc. Concerning the emission spectrum of the yellow light safelight (a product of Osram GmbH), the transmission spectrum was measured for the yellow filter film by using the same measuring apparatus.

As shown in the above graph, the titanocene initiator that is used in Murota et al essentially has an absorption at wavelengths exceeding 500 nm. Therefore, fogging inevitably takes place due to dark reaction when the titanocene is used as an essential ingredient.

The expression "fogging" [or fog]...due to dark reaction" has the same meaning in this context as "fog formed under a yellow safelight." In the case of making a lithographic printing plate from a lithographic printing plate precursor, the precursor is sometimes treated under a yellow safelight. When a titanocene compound is used in a lithographic printing plate precursor, polymerization proceeds to some extent since the titanocene has an absorption spectrum slightly overlapping with the transmission spectrum of the yellow safelight. This phenomenon is called "fog due to dark reaction." In other words, even in the unexposed areas (the portions where no

image is formed or the portions that are desired not to cause polymerization reaction), polymerization occurs, and thus such areas remain since the portions are not removed by development. The remaining areas attract ink during printing, appearing as stains. Accordingly, use of titanocene is not suited for cases where a lithographic printing plate precursor is handled under a yellow safelight.

In contrast, HABI, the initiator of the present application, has no overlapping portion with the transmission spectrum of the yellow safelight and differs from the titanocene initiator.

In view of the above, it is my opinion that the present invention provides unexpected superiority by the use of HABI, as compared to Murota et al.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 7/19/2006

Akinori Shibuya

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